What is claimed is:

1.   1.   A system for diagnosing and monitoring congestive heart failure
2   for automated remote patient care, comprising:
3   a database storing a plurality of monitoring sets which each comprise
4   recorded measures relating to patient information recorded on a substantially
5   continuous basis;
6   a server retrieving and processing a plurality of the monitoring sets,
7   comprising:
8   a comparison module determining at least one patient status
9   change by comparing at least one recorded measure from one of the monitoring
10   sets to at least one other recorded measure from another of the monitoring sets
11   with both recorded measures relating to a type of patient information; and
12   an analysis module testing each patient status change for one of an
13   absence, an onset, a progression, a regression, and a status quo of congestive heart
14   failure against a predetermined indicator threshold corresponding to a type of
15   patient information as the recorded measures which were compared, the indicator
16   threshold corresponding to a quantifiable physiological measure of a
17   pathophysiology indicative of congestive heart failure.

1.   2.   A system according to Claim 1, further comprising:
2   an analysis submodule managing the congestive heart failure through a
3   means of performing at least one of preload reduction, afterload reduction,
4   diuresis, beta-blockade, inotropic agents, electrolyte management, electrical
5   therapies, and mechanical therapies.

1.   3.   A system according to Claim 1, further comprising:
2   at least one of a medical device adapted to be implanted in an individual
3   patient and an external medical device proximal to the individual patient for
4   recording device measures, and a medical device database module periodically
5   receiving a monitoring set for an individual patient, each recorded measure in the
6   medical device monitoring set having been recorded by the at least one of a

7   medical device adapted to be implanted in an individual patient and an external

8   medical device proximal to the individual patient when the device measures are

9   recorded and storing the received monitoring set in the database as part of a

10 patient care record for the individual patient.

1   4.   A system according to Claim 3, further comprising:

2   a set of at least one further indicator thresholds, each indicator threshold

3   corresponding to a quantifiable physiological measure used to detect a

4   pathophysiology indicative of diseases other than congestive heart failure;

5   a comparison submodule comparing each patient status change to each

6   such further indicator threshold corresponding to the same type of patient

7   information as the at least one recorded measure and the at least one other

8   recorded measure; and

9   an analysis submodule testing each patient status change against each

10 such further indicator threshold corresponding to the same type of patient

11 information as the recorded measures which were compared.

1   5.   A system according to Claim 1, further comprising:

2   a comparison submodule determining a change in patient status by

3   comparing at least one quality of life measure stored in one of the monitoring sets

4   to at least one other corresponding quality of life measure stored in another of the

5   monitoring sets.

1   6.   A system according to Claim 1, further comprising:

2   a set of at least one stickiness indicators for each type of patient

3   information, each stickiness indicator corresponding to a temporal limit related to

4   a program of patient diagnosis or treatment;

5   a comparison submodule comparing a time span occurring between each

6   patient status change for each recorded measure to the stickiness indicator relating

7   to the same type of patient information as the recorded measure being compared;

8   and

9   an analysis submodule determining a revised program of patient diagnosis

10   or treatment responsive to each patient status change occurring subsequent to a

11   time span exceeding the stickiness indicator.

1   7.   A system according to Claim 1, further comprising:

2   a database module retrieving the plurality of monitoring sets from one of a

3   patient care record for an individual patient, a peer group, and a overall patient

4   population.

1   8.   A system according to Claim 1, further comprising:

2   the database further storing a reference baseline comprising recorded

3   measures which each relate to patient information recorded during an initial time

4   period and comprise either medical device measures or derived measures

5   calculable therefrom; and

6   a database module obtaining at least one of the at least one recorded

7   measure and the at least one other recorded measure from the retrieved reference

8   baseline.

1   9.   A system according to Claim 1, wherein the indicator threshold

2   relates to at least one of a finding of reduced exercise capacity and respiratory

3   distress.

1   10.   A system according to Claim 9, wherein the indicator threshold

2   relating to the finding of reduced exercise capacity is selected from the group

3   comprising decreased cardiac output, decreased mixed venous oxygen score and

4   decreased patient activity score.

1   11.   A system according to Claim 9, wherein the indicator threshold

2   relating to the finding of respiratory distress is selected from the group comprising

3   increased pulmonary artery diastolic pressure, increased respiratory rate and

4   decreased transthoracic impedance.

1   12.   A method for diagnosing and monitoring congestive heart failure

2   for automated remote patient care, comprising:

3   storing a plurality of monitoring sets which each comprise recorded

4   measures relating to patient information recorded on a substantially continuous

5   basis in a database;

6   retrieving a plurality of the monitoring sets from the database;

7   determining at least one patient status change by comparing at least one

8   recorded measure from one of the monitoring sets to at least one other recorded

9   measure from another of the monitoring sets with both recorded measures relating

10   to a type of patient information; and

11   testing each patient status change for one of an absence, an onset, a

12   progression, a regression, and a status quo of congestive heart failure against a

13   predetermined indicator threshold corresponding to a type of patient information

14   as the recorded measures which were compared, the indicator threshold

15   corresponding to a quantifiable physiological measure of a pathophysiology

16   indicative of congestive heart failure.

1   13.   A method according to Claim 12, further comprising:

2   managing the congestive heart failure through administration of at least

3   one of preload reduction, afterload reduction, diuresis, beta-blockade, inotropic

4   agents, electrolyte management, electrical therapies, and mechanical therapies.

1   14.   A method according to Claim 12, further comprising:

2   periodically receiving a monitoring set for an individual patient, each

3   recorded measure in the monitoring set having been recorded by at least one of a

4   medical device adapted to be implanted in an individual patient and an external

5   medical device proximal to the individual patient when the device measures are

6   recorded; and

7   storing the received monitoring set in the database as part of a patient care

8   record for the individual patient.

1   15.   A method according to Claim 14, further comprising:

2   defining a set of further indicator thresholds, each indicator threshold

3   corresponding to a quantifiable physiological measure used to detect a

4   pathophysiology indicative of diseases other than congestive heart failure;

5   comparing each patient status change to each such further indicator

6   threshold corresponding to the same type of patient information as the at least one

7   recorded measure and the at least one other recorded measure; and

8   testing each patient status change against each such further indicator

9   threshold corresponding to the same type of patient information as the recorded

10   measures which were compared.

1   16.   A method according to Claim 12, further comprising:

2   determining a change in patient status by comparing at least one quality of

3   life measure stored in one of the monitoring sets to at least one other

4   corresponding quality of life measure stored in another of the monitoring sets.

1   17.   A method according to Claim 12, further comprising:

2   defining a set of stickiness indicators for each type of patient information,

3   each stickiness indicator corresponding to a temporal limit related to a program of

4   patient diagnosis or treatment;

5   comparing a time span occurring between each patient status change for

6   each recorded measure to the stickiness indicator relating to the same type of

7   patient information as the recorded measure being compared; and

8   determining a revised program of patient diagnosis or treatment

9   responsive to each patient status change occurring subsequent to a time span

10   exceeding the stickiness indicator.

1   18.   A method according to Claim 12, further comprising:

2   retrieving the plurality of monitoring sets from one of a patient care record

3   for an individual patient, a peer group, and a overall patient population.

1   19.   A method according to Claim 12, further comprising:

2   retrieving a reference baseline comprising recorded measures which each

3   relate to patient information recorded during an initial time period and comprise

4   either medical device measures or derived measures calculable therefrom; and

5   obtaining at least one of the at least one recorded measure and the at least

6   one other recorded measure from the retrieved reference baseline.

1   20.   A method according to Claim 12, wherein the indicator threshold

2   relates to at least one of a finding of reduced exercise capacity and respiratory

3   distress.

1   21.   A method according to Claim 20, wherein the indicator threshold

2   relating to the finding of reduced exercise capacity is selected from the group

3   consisting of decreased cardiac output, decreased mixed venous oxygen score and

4   decreased patient activity score.

1   22.   A method according to Claim 20, wherein the indicator threshold

2   relating to the finding of respiratory distress is selected from the group consisting

3   of increased pulmonary artery diastolic pressure, increased respiratory rate and

4   decreased transthoracic impedance.

5   23.   A computer-readable storage medium holding code for diagnosing

6   and monitoring congestive heart failure for automated remote patient care, the

7   code comprising:

8   code for storing a plurality of monitoring sets which each comprise

9   recorded measures relating to patient information recorded on a substantially

10   continuous basis in a database;

11   code for operatively retrieving a plurality of monitoring sets from the

12   database;

13   code for operatively determining at least one patient status change by

14   comparing at least one recorded measure from one of the monitoring sets to at

15   least one other recorded measure from another of the monitoring sets with both

16   recorded measures relating to a type of patient information; and

17   code for operatively testing each patient status change for one of an

18 absence, an onset, a progression, a regression, and a status quo of congestive heart

19 failure against a predetermined indicator threshold corresponding to a type of

20 patient information as the recorded measures which were compared, the indicator

21 threshold corresponding to a quantifiable physiological measure of a

22 pathophysiology indicative of congestive heart failure.

1   24.   A storage medium according to Claim 23, further comprising:

2   code for operatively managing the congestive heart failure through

3 administration of at least one of preload reduction, afterload reduction, diuresis,

4 beta-blockade, inotropic agents, electrolyte management, electrical therapies, and

5 mechanical therapies.

1   25.   A storage medium according to Claim 23, further comprising:

2   code for operatively periodically receiving a monitoring set for an

3 individual patient, each recorded measure in the monitoring set having been

4 recorded by at least one of a medical device adapted to be implanted in an

5 individual patient and an external medical device proximal to the individual

6 patient when the device measures are recorded; and

7   code for operatively storing the received monitoring set in the database as

8 part of a patient care record for the individual patient.

1   26.   A storage medium according to Claim 25, further comprising:

2   defining a set of at least one further indicator thresholds, each indicator

3 threshold corresponding to a quantifiable physiological measure used to detect a

4 pathophysiology indicative of diseases other than congestive heart failure;

5   comparing each patient status change to each such further indicator

6 threshold corresponding to the same type of patient information as the at least one

7 recorded measure and the at least one other recorded measure; and

8   testing each patient status change against each such further indicator

9 threshold corresponding to the same type of patient information as the recorded

10 measures which were compared.

1   27.   A storage medium according to Claim 23, further comprising:

2   code for operatively determining a change in patient status by comparing

3 at least one quality of life measure stored in one of the monitoring set to at least

4 one other corresponding quality of life measure stored in another of the

5 monitoring sets.

1   28.   A storage medium according to Claim 23, further comprising:

2   code for operatively defining a set of stickiness indicators for each type of

3 patient information, each stickiness indicator corresponding to a temporal limit

4 related to a program of patient diagnosis or treatment;

5   code for operatively comparing a time span occurring between each

6 patient status change for each recorded measure to the stickiness indicator relating

7 to the same type of patient information as the recorded measure being compared;

8 and

9   code for operatively determining a revised program of patient diagnosis or

10 treatment responsive to each patient status change occurring subsequent to a time

11 span exceeding the stickiness indicator.

1   29.   A storage medium according to Claim 23, further comprising:

2   code for operatively retrieving the plurality of monitoring sets from one of

3 a patient care record for an individual patient, a peer group, and a overall patient

4 population.

1   30.   A storage medium according to Claim 23, further comprising:

2   code for operatively retrieving a reference baseline comprising recorded

3 measures which each relate to patient information recorded during an initial time

4 period and comprise either medical device measures or derived measures

5 calculable therefrom; and

6   code for operatively obtaining at least one of the at least one recorded

7 measure and the at least one other recorded measure from the retrieved reference

8 baseline.

1   31.   An automated collection and analysis patient care system for

2   diagnosing and monitoring congestive heart failure for remote patient care,

3   comprising:

4   a database storing patient monitoring information, comprising:

5   a plurality of monitoring sets, each monitoring set comprising

6   recorded measures which each relate to patient information and comprise either

7   medical device measures or derived measures calculable therefrom, the medical

8   device measures having been recorded on a substantially continuous basis;

9   a set of at least one stored indicator threshold, each indicator

10   threshold corresponding to a quantifiable physiological measure of a

11   pathophysiology indicative of congestive heart failure and relating to a type of

12   patient information as at least one of the recorded measures; and

13   a server diagnosing a congestive heart failure finding comprising one of an

14   absence, an onset, a progression, a regression, and a status quo of. congestive

15   heart failure, comprising:

16   an analysis module determining a change in patient status by

17   comparing at least one recorded measure to at least one other recorded measure

18   with both recorded measures relating to a type of patient information; and

19   a comparison module comparing each patient status change to the

20   indicator threshold corresponding to a type of patient information as the recorded

21   measures which were compared.

1   32.   A system according to Claim 31, wherein the device measures are

2   recorded by a medical device that is at least one of a medical device adapted to be

3   implanted in an individual patient and an external medical device proximal to the

4   individual patient when the device measures are recorded.

1   33.   A system according to Claim 31, wherein each of the monitoring

2   sets comprises recorded measures relating to patient information solely for the

3   individual patient, further comprising:

4   a database module retrieving each monitoring set from a patient care

5   record for an individual patient and obtaining the at least one recorded measure

6   and the at least one other recorded measure from the retrieved monitoring sets.

1   34.   A system according to Claim 31, wherein each of the monitoring

2   sets comprises recorded measures relating to patient information for a peer group

3   of patients to which the individual patient belongs, further comprising:

4   a database module retrieving at least one monitoring set from a patient

5   care record for the individual patient, retrieving at least one other monitoring set

6   from a patient care record in the same patient peer group, and obtaining the at

7   least one recorded measure from the at least one monitoring set and the at least

8   one other recorded measure from the at least one other monitoring set.

1   35.   A system according to Claim 31, wherein each of the monitoring

2   sets comprises recorded measures relating to patient information for the general

3   population of patients, further comprising:

4   a database module retrieving at least one monitoring set from a patient

5   care record for the individual patient, retrieving at least one other monitoring set

6   from a patient care record in the overall patient population, and obtaining the at

7   least one recorded measure from the at least one monitoring set and the at least

8   one other recorded measure from the at least one other monitoring set.

1   36.   A system according to Claim 31, further comprising:

2   the reference baseline database storing a reference baseline comprising

3   recorded measures which each relate to patient information recorded by the

4   medical device adapted to be implanted during an initial time period and comprise

5   either device measures recorded by the medical device adapted to be implanted or

6   derived measures calculable therefrom; and

7   a database module obtaining at least one of the at least one recorded

8   measure and the at least one other recorded measure from the retrieved reference

9   baseline.

1   37.   A system according to Claim 36, wherein the reference baseline

2 comprises recorded measures relating to patient information for one of the

3 individual patients solely, a peer group of patients to which the individual patient

4 belongs, and a general population of patients.

1   38.   A system according to Claim 31, wherein the set of stored

2 indicator thresholds relate to reduced exercise capacity selected from the primary

3 group consisting of decreased cardiac output, the secondary group consisting of

4 decreased mixed venous oxygen score and decreased patient activity score, and

5 the tertiary group consisting of increased pulmonary artery diastolic pressure,

6 increased respiratory rate and decreased transthoracic impedance.

1   39.   A system according to Claim 31, wherein the set of stored

2 indicator thresholds relate to respiratory distress selected from the primary group

3 consisting of increased pulmonary artery diastolic pressure, the secondary group

4 consisting of increased respiratory rate and decreased transthoracic impedance,

5 and the tertiary group consisting of decreased cardiac output, decreased mixed

6 venous oxygen score and decreased patient activity score.

1   40.   A system according to Claim 31, further comprising:

2   a comparison submodule grading the comparisons between each patient

3 status change and corresponding indicator threshold on a fixed scale based on a

4 degree of deviation from the indicator threshold and determining an overall

5 patient status change by performing a summation over the individual graded

6 comparisons.

1   41.   A system according to Claim 31, further comprising:

2   a comparison submodule determining probabilistic weightings of the

3 comparisons between each patient status change and corresponding indicator

4 threshold based on a statistical deviation and trends via linear fits from the

5 indicator threshold and determining an overall patient status change by

6 performing a summation over the individual graded comparisons.

1   42.   A system according to Claim 31, wherein each monitoring set

2   further comprises quality of life and symptom measures recorded by the

3   individual patient, the server further comprising:

4   a quality of life module determining a change in patient status by

5   comparing at least one recorded quality of life measure to at least one other

6   corresponding recorded quality of life measure; and

7   the server incorporating each patient status change in quality of life into

8   the congestive heart failure finding to either refute or support the diagnosis.

1   43.   A system according to Claim 31, further comprising:

2   a set of at least one stored further indicator thresholds, each indicator

3   threshold corresponding to a quantifiable physiological measure used to detect a

4   pathophysiology indicative of diseases other than congestive heart failure of

5   disease; and

6   the server diagnosing a finding of a disease other than congestive heart

7   failure, the comparison module further comprising comparing each patient status

8   change to each such further indicator threshold corresponding to the same type of

9   patient information as the at least one recorded measure and the at least one other

10   recorded measure.

1   44.   A system according to Claim 31, further comprising:

2   a timer measuring a time span occurring between each patient status

3   change for each recorded measure;

4   a set of at least one stickiness indicators, each indicator threshold

5   corresponding to a temporal limit related to a course of patient care; and

6   a feedback module comparing a time span between each patient status

7   change for each recorded measure to the stickiness indicator corresponding to the

8   same type of patient information as the recorded measure being compared.

1   45.   A system according to Claim 31, further comprising:

2   a feedback module providing automated feedback to an individual patient

3   when a congestive heart failure finding is indicated.

1   46.   A system according to Claim 45, further comprising:

2   the feedback module performing an interactive dialogue between the

3   individual patient and the patient care system regarding a medical condition of the

4   individual patient.

1   47.   A method for diagnosing and monitoring congestive heart failure

2   using an automated collection and analysis patient care system, comprising:

3   storing a plurality of monitoring sets in a database, each monitoring set

4   comprising recorded measures which each relate to patient information and

5   comprise either medical device measures or derived measures calculable

6   therefrom, the medical device measures having been recorded on a substantially

7   continuous basis;

8   retrieving a plurality of monitoring sets from the database;

9   defining a set of at least one stored indicator threshold, each indicator

10   threshold corresponding to a quantifiable physiological measure of a

11   pathophysiology indicative of congestive heart failure and relating to a type of

12   patient information as at least one of the recorded measures; and

13   diagnosing a congestive heart failure finding comprising one of an

14   absence, an onset, a progression, a regression, and a status quo of. congestive

15   heart failure, comprising:

16   determining a change in patient status by comparing at least

17   one recorded measure to at least one other recorded measure with both recorded

18   measures relating to a type of patient information; and

19   comparing each patient status change to the indicator threshold corresponding to a

20   type of patient information as the recorded measures which were compared.

1   48.   A method according to Claim 47, wherein the device measures are

2   recorded by at least one of a medical device adapted to be implanted in an

3   individual patient and an external medical device proximal to the individual

4   patient when the device measures are recorded.

1   49.   A method according to Claim 48, wherein each of the monitoring

2 sets comprises recorded measures relating to patient information solely for the

3 individual patient, further comprising:

4   retrieving each monitoring set from a patient care record for an individual

5 patient; and

6   obtaining the at least one recorded measure and the at least one other

7 recorded measure from the retrieved monitoring sets.

1   50.   A method according to Claim 47, wherein each of the monitoring

2 sets comprises recorded measures relating to patient information for a peer group

3 of patients to which the individual patient belongs, further comprising:

4   retrieving at least one monitoring set from a patient care record for the

5 individual patient;

6   retrieving at least one other monitoring set from a patient care record in

7 the same patient peer group; and

8   obtaining the at least one recorded measure from the at least one

9 monitoring set and the at least one other recorded measure from the at least one

10 other monitoring set.

1   51.   A method according to Claim 47, wherein each of the monitoring

2 sets comprises recorded measures relating to patient information for the general

3 population of patients, further comprising:

4   retrieving at least one monitoring set from a patient care record for the

5 individual patient;

6   retrieving at least one other monitoring set from a patient care record in

7 the overall patient population; and

8   obtaining the at least one recorded measure from the at least one

9 monitoring set and the at least one other recorded measure from the at least one

10 other monitoring set.

1   52.   A method according to Claim 47, further comprising:

2   retrieving a reference baseline comprising recorded measures which each

3   relate to patient information recorded by the medical device adapted to be

4   implanted during an initial time period and comprise either device measures

5   recorded by the medical device adapted to be implanted or derived measures

6   calculable therefrom; and

7   obtaining at least one of the at least one recorded measure and the at least

8   one other recorded measure from the retrieved reference baseline.

1   53.   A method according to Claim 52, wherein the reference baseline

2   comprises recorded measures relating to patient information for one of the

3   individual patients solely, a peer group of patients to which the individual patient

4   belongs, and a general population of patients.

1   54.   A method according to Claim 47, wherein the set of stored

2   indicator thresholds relate to reduced exercise capacity selected from the primary

3   group consisting of decreased cardiac output, the secondary group consisting of

4   decreased mixed venous oxygen score and decreased patient activity score, and

5   the tertiary group consisting of increased pulmonary artery diastolic pressure,

6   increased respiratory rate and decreased transthoracic impedance.

1   55.   A method according to Claim 47, wherein the set of stored

2   indicator thresholds relate to respiratory distress selected from the primary group

3   consisting of increased pulmonary artery diastolic pressure, the secondary group

4   consisting of increased respiratory rate and decreased transthoracic impedance,

5   and the tertiary group consisting of decreased cardiac output, decreased mixed

6   venous oxygen score and decreased patient activity score.

1   56.   A method according to Claim 47, further comprising:

2   grading the comparisons between each patient status change and

3   corresponding indicator threshold on a fixed scale based on a degree of deviation

4   from the indicator threshold; and

5   determining an overall patient status change by performing a summation

6   over the individual graded comparisons.

1   57.   A method according to Claim 47, further comprising:

2   determining probabilistic weightings of the comparisons between each

3   patient status change and corresponding indicator threshold based on a statistical

4   deviation and trends via linear fits from the indicator threshold; and

5   determining an overall patient status change by performing a summation

6   over the individual graded comparisons.

1   58.   A method according to Claim 47, wherein each monitoring set

2   further comprises quality of life and symptom measures recorded by an individual

3   patient, the operation of diagnosing a congestive heart failure finding further

4   comprising:

5   determining a change in patient status by comparing at least one recorded

6   quality of life measure to at least one other corresponding recorded quality of life

7   measure; and

8   incorporating each patient status change in quality of life into the

9   congestive heart failure finding to either refute or support the diagnosis.

1   59.   A method according to Claim 47, further comprising:

2   defining a set of further indicator thresholds, each indicator threshold

3   corresponding to a quantifiable physiological measure used to detect a

4   pathophysiology indicative of diseases other than congestive heart failure; and

5   diagnosing a finding of the disease other than congestive heart failure,

6   comprising comparing each patient status change to each such further indicator

7   threshold corresponding to the same type of patient information as the at least one

8   recorded measure and the at least one other recorded measure.

1   60.   A method according to Claim 47, further comprising:

2   defining a set of stickiness indicators, each indicator threshold

3   corresponding to a temporal limit related to a course of patient care; and

4   comparing a time span between each patient status change for each

5   recorded measure to the stickiness indicator corresponding to the same type of

6   patient information as the recorded measure being compared.

1   61.   A method according to Claim 47, further comprising:

2   providing automated feedback to the individual patient when a congestive

3   heart failure finding is indicated.

1   62.   A method according to Claim 61, further comprising:

2   performing an interactive dialogue between the individual patient and the

3   patient care system regarding a medical condition of the individual patient.

1   63.   A computer-readable storage medium holding code for diagnosing

2   and monitoring congestive heart failure using an automated collection and

3   analysis patient care system, the code comprising:

4   code for storing a plurality of monitoring sets from a database, each

5   monitoring set comprising recorded measures which each relate to patient

6   information and comprise either medical device measures or derived measures

7   calculable therefrom, the medical device measures having been recorded on a

8   substantially continuous basis;

9   code for operatively retrieving a plurality of the monitoring sets from the

10   database;

11   code for operatively defining a set of at least one indicator threshold, each

12   indicator threshold corresponding to a quantifiable physiological measure of a

13   pathophysiology indicative of congestive heart failure and relating to the same

14   type of patient information as at least one of the recorded measures; and

15   code for operatively diagnosing a congestive heart failure finding

16   comprising one of an absence, an onset, a progression, a regression, and a status

17   quo of. congestive heart failure, comprising:

18   code for operatively determining a change in patient status by

19   comparing at least one recorded measure to at least one other recorded measure

20   with both recorded measures relating to the same type of patient information; and

21   code for operatively comparing each patient status change to the

22   indicator threshold corresponding to the same type of patient information as the

23   recorded measures which were compared.

1   64.   A storage medium according to Claim 63, wherein each of the

2   monitoring sets comprises recorded measures relating to patient information

3   solely for the individual patient, further comprising:

4   code for operatively retrieving each monitoring set from a patient care

5   record for the individual patient; and

6   code for operatively obtaining the at least one recorded measure and the at

7   least one other recorded measure from the retrieved monitoring sets.

1   65.   A storage medium according to Claim 63, wherein each of the

2   monitoring sets comprises recorded measures relating to patient information for a

3   peer group of patients to which the individual patient belongs, further comprising:

4   code for operatively retrieving at least one monitoring set from a patient

5   care record for the individual patient;

6   code for operatively retrieving at least one other monitoring set from a

7   patient care record in the same patient peer group; and

8   code for operatively obtaining the at least one recorded measure from the

9   at least one monitoring set and the at least one other recorded measure from the at

10   least one other monitoring set.

1   66.   A storage medium according to Claim 63, wherein each of the

2   monitoring sets comprises recorded measures relating to patient information for

3   the general population of patients, further comprising:

4   code for operatively retrieving at least one monitoring set from a patient

5   care record for the individual patient;

6   code for operatively retrieving at least one other monitoring set from a

7   patient care record in the overall patient population; and

8   code for operatively obtaining the at least one recorded measure from the

9   at least one monitoring set and the at least one other recorded measure from the at

10   least one other monitoring set.

1   67.   A storage medium according to Claim 63, further comprising:

2   code for operatively retrieving a reference baseline comprising recorded

3   measures which each relate to patient information recorded by the medical device

4   adapted to be implanted during an initial time period and comprise either device

5   measures recorded by the medical device adapted to be implanted or derived

6   measures calculable therefrom; and

7   code for operatively obtaining at least one of the at least one recorded

8   measure and the at least one other recorded measure from the retrieved reference

9   baseline.

1   68.   A storage medium according to Claim 63, the operation of

2   comparing each patient status change further comprising:

3   code for operatively grading the comparisons between each patient status

4   change and corresponding indicator threshold on a fixed scale based on a degree

5   of deviation from the indicator threshold; and

6   code for operatively determining an overall patient status change by

7   performing a summation over the individual graded comparisons.

1   69.   A storage medium according to Claim 63, the operation of

2   comparing each patient status change further comprising:

3   code for operatively determining probabilistic weightings of the

4   comparisons between each patient status change and corresponding indicator

5   threshold based on a statistical deviation and trends via linear fits from the

6   indicator threshold; and

7   code for operatively determining an overall patient status change by

8   performing a summation over the individual graded comparisons.

1   70.   A storage medium according to Claim 63, wherein each

2   monitoring set further comprises quality of life and symptom measures recorded

3   by the individual patient, the operation of diagnosing a congestive heart failure

4   finding further comprising:

5   code for operatively determining a change in patient status by comparing

6   at least one recorded quality of life measure to at least one other corresponding

7   recorded quality of life measure; and

8   code for operatively incorporating each patient status change in quality of

9   life into the congestive heart failure finding to either refute or support the

10   diagnosis.

1   71.   A storage medium according to Claim 63, further comprising:

2   code for defining a set of at least one further indicator thresholds, each

3   indicator threshold corresponding to a quantifiable physiological measure used to

4   detect a pathophysiology indicative of diseases other than congestive heart failure;

5   and

6   code for diagnosing a finding of the disease other than congestive heart

7   failure, comprising comparing each patient status change to each such further

8   indicator threshold corresponding to the same type of patient information as the at

9   least one recorded measure and the at least one other recorded measure.

1.   72.   A storage medium according to Claim 63, further comprising:

2   code for defining a set of at least one stickiness indicators, each indicator

3   threshold corresponding to a temporal limit related to a course of patient care; and

4   code for comparing a time span between each patient status change for

5   each recorded measure to the stickiness indicator corresponding to the same type

6   of patient information as the recorded measure being compared.

1   73.   A storage medium according to Claim 63, further comprising:

2   code for operatively providing automated feedback to the individual

3   patient when a congestive heart failure finding is indicated.

1   74.   A storage medium according to Claim 73, further comprising:

2   code for operatively performing an interactive dialogue between the

3   individual patient and the patient care system regarding a medical condition of the

4   individual patient.

1   75.   An automated patient care system for diagnosing and monitoring

2   congestive heart failure for remote patient care, comprising:

3   a medical device regularly recording measures relating to at least one of

4   monitoring reduced exercise capacity and respiratory distress;

5   a database maintaining information for an individual patient, comprising

6   organizing a plurality of monitoring sets in a database, and storing the recorded

7   measures for the individual patient on a substantially continuous basis into a

8   monitoring set in the database;

9   a server evaluating a finding of at least one of an absence, an onset, a

10   progression, a regression, and a status quo of congestive heart failure, comprising:

11   a database module periodically retrieving a plurality of the

12   monitoring sets from the database;

13   a comparison module determining at least one patient status

14   change by comparing at least one recorded measure from each of the monitoring

15   sets to at least one other recorded measure with both recorded measures relating

16   to a type of patient information; and

17   an analysis module testing each patient status change for

18   congestive heart failure against predetermined indicator thresholds corresponding

19   to a type of patient information as the recorded measures which were compared,

20   the indicator thresholds corresponding to quantifiable physiological measures of

21   pathophysiologies indicative of reduced exercise capacity and respiratory distress.

1   76.   A system according to Claim 75, wherein the indicator threshold

2   relating to reduced exercise capacity is selected from the primary group consisting

3   of decreased cardiac output, the secondary group consisting of decreased mixed

4   venous oxygen score and decreased patient activity score, and the tertiary group

5   consisting of increased pulmonary artery diastolic pressure, increased respiratory

6   rate and decreased transthoracic impedance.

1   77.   A system according to Claim 75, wherein the indicator threshold

2   relating to respiratory distress is selected from the primary group consisting of

3   increased pulmonary artery diastolic pressure, the secondary group consisting of

4   increased respiratory rate and decreased transthoracic impedance, and the tertiary

5   group consisting of decreased cardiac output, decreased mixed venous oxygen

6   score and decreased patient activity score.

1   78.   A method for diagnosing and monitoring congestive heart failure

2   in an automated patient care system, comprising:

3   regularly recording measures relating to at least one of monitoring reduced

4   exercise capacity and respiratory distress;

5   maintaining information for an individual patient, comprising:

6   organizing a plurality of monitoring sets in a database;

7   storing the recorded measures for the individual patient on a

8   substantially continuous basis into a monitoring set in the database;

9   periodically retrieving a plurality of the monitoring sets from the database;

10   evaluating a finding of at least one of an absence, an onset, a progression,

11   a regression, and a status quo of congestive heart failure, comprising:

12   determining at least one patient status change by comparing at least

13   one recorded measure from each of the monitoring sets to at least one other

14   recorded measure with both recorded measures relating to a type of patient

15   information; and

16   testing each patient status change for congestive heart failure

17   against predetermined indicator thresholds corresponding to a type of patient

18   information as the recorded measures which were compared, the indicator

19   thresholds corresponding to quantifiable physiological measures of

20   pathophysiologies indicative of reduced exercise capacity and respiratory distress.

1   79.   A method according to Claim 78, wherein the indicator threshold

2   relating to reduced exercise capacity is selected from the primary group consisting

3   of decreased cardiac output, the secondary group consisting of decreased mixed

4   venous oxygen score and decreased patient activity score, and the tertiary group

5   consisting of increased pulmonary artery diastolic pressure, increased respiratory

6   rate and decreased transthoracic impedance.

1   80.   A method according to Claim 78, wherein the indicator threshold

2   relating to respiratory distress is selected from the primary group consisting of

3   increased pulmonary artery diastolic pressure, the secondary group consisting of

4   increased respiratory rate and decreased transthoracic impedance, and the tertiary

5   group consisting of decreased cardiac output, decreased mixed venous oxygen

6   score and decreased patient activity score.

7   81.   A computer-readable storage medium holding code for diagnosing

8   and monitoring congestive heart failure in an automated patient care system, the

9   code comprising:

10   code for regularly recording measures relating to at least one of

11   monitoring reduced exercise capacity and respiratory distress;

12   code for maintaining information for an individual patient, comprising:

13   code for organizing a plurality of monitoring sets in a database;

14   code for storing the recorded measures for the individual patient on

15   a substantially continuous basis into a monitoring set in the database;

16   code for periodically retrieving a plurality of the monitoring sets from the

17   database;

18   code for evaluating a finding of at least one of an absence, an onset, a

19   progression, a regression, and a status quo of congestive heart failure, comprising:

20   code for determining at least one patient status change by

21   comparing at least one recorded measure from each of the monitoring sets to at

22   least one other recorded measure with both recorded measures relating to a type

23   of patient information; and

24   code for testing each patient status change for congestive heart

25   failure against predetermined indicator thresholds corresponding to a type of

26   patient information as the recorded measures which were compared, the indicator

27   thresholds corresponding to quantifiable physiological measures of

28   pathophysiologies indicative of reduced exercise capacity and respiratory distress.